Clean Air Task Force | National Wildlife Federation
Natural Resources Defense Council | Partnership for Policy Integrity
Sierra Club | Southern Environmental Law Center

December 1, 2014

Submitted via regulations.gov

EPA Docket Center
US Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Attn: Docket ID No. EPA-HQ-OAR-2013-0602

Re: Joint Comments of **Clean Air Task Force, National Wildlife Federation, Natural Resources Defense Council, Partnership for Policy Integrity, Sierra Club, and Southern Environmental Law Center** on Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014); Notice of Data Availability in support of Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 64,543 (October 30, 2014); Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources (November 19, 2014); *and* Memorandum on Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources (November 19, 2014).

Dear Administrator McCarthy:

On behalf of the public interest environmental organizations listed above, we appreciate the opportunity to comment on the US Environmental Protection Agency's treatment of biomass-based power generation within its proposed regulation of existing fossil fuel electric utility generating units ("EGUs") under Section 111(d) of the Clean Air Act. These comments address the proposed rule (the "ESPS proposal")[1] and its supporting technical documents, as well as a revised accounting framework for biogenic GHG emissions and a policy memo that were released by the Agency on November 19, 2014. Several of the organizations listed above are individually submitting separate comments that further address EPA's proposed treatment of biomass in the ESPS.

Summary Of Comments

As compared to coal- and natural gas-based electricity generation, burning solid biomass always emits more carbon pollution per megawatt-hour of electricity generated and can

[1] 79 Fed. Reg. 34830 (June 2, 2014).

result in higher net greenhouse gas emissions for decades.[2] EPA acknowledges as much in its proposed ESPS, but nevertheless fails to fully account for biogenic emissions when it sets state emission reduction targets and when it describes the role that biomass combustion can play in meeting those targets. Furthermore, EPA's recent *Memorandum on Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources* could effectively exempt a large number of biomass-burning EGUs that claim to use "waste" feedstocks and "sustainably-derived feedstocks," without any showing by the Agency that the exemption is consistent with the requirements of Section 111(d) of the Clean Air Act.

The Climate Impacts of Biomass-Based Power Generation

The latest science demonstrates that burning biomass for electricity, especially whole trees and other large-diameter woody biomass, increases net CO_2 emissions for anywhere from 35 to 100 years or more when compared to fossil fuel combustion.[3] EPA has acknowledged in supporting materials for the proposed ESPS that "the overall net atmospheric contribution of CO_2 resulting from the use of a biogenic feedstock by a stationary source, such as an EGU, will ultimately depend on the stationary source process and the type of feedstock used, as well as the conditions under which that feedstock is grown and harvested."[4] Elsewhere EPA notes that only "*certain* biomass-derived fuels" have "positive attributes,"[5] and EPA's newly revised *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* explains that net emissions—the difference between combustion emissions and those resulting from alternative fates for a feedstock—are generally greater than zero and in many cases are significant.

EPA's Treatment of Biomass in the Proposed ESPS

EPA incorporates projections about future biomass-based power generation when setting emission reduction targets under the ESPS. State emission reduction targets are based on several factors, including an estimate about the extent to which states will increase their reliance on renewable energy ("RE").[6] In the proposed RE approach described in the "GHG Abatement Measures Technical Support Document," EPA establishes each state's RE baseline level using a dataset that includes electricity generated from biomass combustion.[7] The Agency then extrapolates each state's renewable generation target—*i.e.*, the amount of nominally zero-carbon RE that EPA estimates the state can produce on an

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[2] The use of some biomass feedstocks, including some industrial and logging residues that would otherwise quickly decompose or be burned *in situ*, can reduce net GHG emissions within one or two decades when compared to fossil fuel-based electricity generation. As discussed below, EPA has not yet provided a clear methodology for distinguishing potentially beneficial biomass feedstocks from those that cause long-term increases in net GHG levels.

[3] *See, e.g.,* Jon McKechie, *et al.*, *Forest Bioenergy or Forest Carbon? Assessing Trade-Offs in Greenhouse Gas Mitigation with Wood-Based Fuels*, 45 ENVTL. SCI. TECH. 789 (2011).

[4] US EPA, *GHG Abatement Measures Technical Support Document*, at 6-12 n. 274, Doc. No. EPA-HQ-OAR-2013-0602 (June 2014) ("Abatement Measures TSD").

[5] 79 Fed. Reg. at 34,925 (emphasis added).

[6] *See generally* 79 Fed. Reg. at 34866-71.

[7] Abatement Measures TSD, at 4-5.

annual basis by 2030—from those baselines.[8] The renewable generation targets are used to determine each state's overall CO_2 reduction targets.[9] EPA's proposed approach sets targets based on renewable portfolio standards averaged across regions and assumes that the use of all RE technologies will grow at the same rate. Importantly, EPA's proposed calculation includes biomass-burning EGUs and assumes—without justification—that biomass-burning EGUs do not emit CO_2.[10]

EPA should explicitly exclude new biomass-burning EGUs from the justification for its proposed targets. EPA currently has no accounting system to distinguish biomass that will result in low-carbon pollution from that which will result in high pollution. As discussed below, EPA recently started to outline an approach for exempting certain categories, but the approach is still undefined and contains elements that are unlawful. Furthermore, EPA can justify its reduction targets without assuming that biomass is both available and will reduce net GHG emissions. As detailed in broader comments on the ESPS being submitted by several of the undersigned organizations separately, there is ample evidence to support much stronger RE targets. EPA's targets will be stronger if they explicitly exclude new biomass.

In its "Alternative RE Approach Technical Support Document," EPA only models the technical and economic potential of increased wind and solar through its IPM modeling and as a result does not include any new biomass-burning EGUs in setting the states' targets.[11] For the same reasons that biomass-burning EGUs should be explicitly excluded from the proposed approach, EPA should continue to exclude them from target determinations carried out under its proposed alternative approach. Especially when updated cost and performance data for wind and solar are incorporated, EPA's alternative approach demonstrates that strong targets can and should be set without arbitrarily assuming the availability of low-carbon biomass.[12]

EPA's proposed treatment of biomass with respect to ESPS compliance is less clear, but no less problematic. In the preamble to the proposed rule, the Agency states that it expects that "states likely will consider biomass-derived fuels in energy production as a way to mitigate the CO_2 emissions attributed to the energy sector and include them as part of their plans to meet the emission reduction requirements of this rule."[13] In the preamble to the June 2014 proposal, EPA committed to providing states with "a clear path" for "meet[ing] the emission reduction requirements of this rule" through the use of biomass.[14]

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[8] 79 Fed. Reg. 34927.
[9] U.S. EPA, *Goal Computation Technical Support Document*, Doc. ID EPA-HQ-OAR-2013-0602 at 14-18 (June 2014) ("Goal Computation TSD").
[10] *Id*.
[11] US EPA, *Alternative RE Approach Technical Support Document* (June 2014).
[12] *See* NRDC, "The EPA's Clean Power Plan Could Save Up to $9 Billion in 2030," November 2014. (http://www.nrdc.org/air/pollution-standards/files/clean-power-plan-energy-savings-IB.pdf)
[13] 79 Fed. Reg. at 34924.
[14] *Id*.

EPA's newly revised *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* offers little in the way of specific direction, however.[15] In most instances, the revised Framework catalogs the various options for analyzing biogenic emissions according to a set of relevant criteria but fails to signal a preference for one approach or another. Moreover, it is unclear how—or even if—the revised Framework will relate to the ESPS, given that EPA "has not yet determined how the framework might be applied in any particular regulatory or policy contexts."[16]

If EPA chooses correctly among the options it catalogs in the revised Framework—*i.e.*, if the Agency requires states to account for biogenic emissions using anticipated future baselines, employ a compact (and policy-relevant) timescale for analysis, utilize spatial scales that facilitate meaningful distinctions between biomass types, and account for leakage—the resulting emissions modeling could reasonably simulate the effect that biogenic emissions will have on the atmosphere during the policy-relevant timeframe. But if EPA makes the wrong choices with respect to these analytic criteria (or allows states to make the wrong choices) the analyses that result will be inaccurate and highly misleading. For example, if EPA allows states to analyze biogenic emissions over a protracted timeframe—such as 50 years, which the Agency contemplates in Appendix B to the revised Framework[17]—affected sources would be free to burn biomass feedstocks that will produce significantly higher GHG emissions over the next several decades, including the time period covered by the ESPS.

The memorandum from Acting Assistant Administrator Janet McCabe that accompanied the revised Framework (the "McCabe Memo) exacerbates this problem by exempting certain facilities and/or their emissions from regulation under the ESPS. Two key features of the McCabe Memo are:

- A finding that the "use of waste-derived feedstocks and certain forest-derived industrial byproducts are likely to have minimal or no net atmospheric contributions of biogenic CO_2 emissions, or even reduce such impacts, when compared with an alternate fate of disposal." Based on this finding, EPA "expects to recognize the biogenic CO_2 emissions and climate policy benefits of waste-derived and certain forest-derived industrial byproduts" when implementing the Clean Power Plan ("CPP").[18]
- A statement that EPA also "expects that states' reliance specifically on sustainably-derived agricultural- and forest-derived feedstocks may also be an approvable element of their [CPP] compliance plans."[19]

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[15] US EPA, *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources* (November 19, 2014) ("Revised Framework").
[16] *Id*. at 2.
[17] EPA Revised Framework-Appendix B: Temporal Scale.
[18] Janet G. McCabe, Acting Assistant Administrator, EPA Office of Air and Radiation, "Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources" (November 19, 2014) ("McCabe Memo") at 2.
[19] *Id*.

The McCabe memo contravenes the findings of the revised Framework in several ways. First, the memo would broadly exempt "waste-derived feedstocks and certain forest-derived industrial byproducts," even though Appendix D of the revised Framework makes it clear that in many circumstances, combusting these materials for energy can result in substantial and long-lasting net CO_2 emissions. Second, the term "sustainable land management" covers an enormous variety of practices, as do the terms "sustainable forestry" and "sustainable agriculture."[20] The McCabe Memo does not provide any definition of these terms. Most importantly, the fact that a regulated EGU burns only "sustainably-derived feedstocks" says very little, if anything, about the amount of biogenic CO_2 emitted by the source or the net effect of those emissions on atmospheric carbon loading. EPA's plan to effectively exempt from ESPS scrutiny those emissions that occur when EGUs combust "sustainably-derived feedstocks" could result in a net increase of CO_2 emissions for decades. Consequently, EPA cannot meet its obligations under CAA §111(d) by requiring affected sources to show that they rely on "sustainably-derived feedstocks."

Accordingly, EPA must withdraw its November 2014 memorandum, particularly the exemption of "sustainably-derived agricultural- and forest-derived feedstocks."

Co-Firing Biomass Does Not Produce Actual, Real-Time Emission Reductions at the Affected Sources and Therefore Cannot Be Relied Upon for Compliance

A standard of performance "reflects the degree of emission limitation achievable through the application of the best system of emission reduction … the Administrator determines has been adequately demonstrated."[21] The emission reductions typically attributed to biomass-burning EGUs are uncertain, speculative, and dislocated, and cannot be relied upon by affected sources for the purpose of ESPS compliance.

First, the relatively higher moisture content and lower heat content of biomass compared to fossil fuel limit the extent to which biomass can be co-fired,[22] and replacing coal with biomass typically increases stack CO_2 emissions.[23] With regard to live trees and plants that are harvested for fuel, the assumption that net biomass emissions are lower than stack emissions is essentially a claim that emissions are "offset" by future plant growth. Thus, all other things being equal and assuming that compensatory and additional planting is not occurring elsewhere, there is no basis whatsoever for claiming a reduction unless plant

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[20] *See, e.g.*, USDA, Sustainable Agriculture-Definitions and Terms (definition of "sustainable agriculture" makes no reference to the net GHG emissions associated with the use of "sustainable agriculture" as an energy feedstock (http://www.nal.usda.gov/afsic/pubs/terms/srb9902.shtml#toc2); *see also* Comments of Clean Air Task Force on the Clean Power Plan ("CPP")—Carbon Pollution Emission Guidelines for Existing Stationary Sources (submitted to US EPA on December 1, 2014) at III.c.ii (survey of definitions of "sustainable forestry" and "sustainable agriculture").

[21] 42 U.S.C. § 7411(a)(1).

[22] US EPA, *Documentation for EPA Base Case v.5.13 Using the Integrated Planning Model* at 5-9 (November 2013) (http://www.epa.gov/powersectormodeling/docs/v513/Documentation.pdf)

[23] Abatement Measures TSD at 6-16.

matter grows back on the land from which the biomass feedstock was harvested[24]—and yet the practice of combusting biomass is only tenuously connected to any subsequent regrowth of plant matter. Second, in the event that regrowth does occur and the CO_2 emitted by a biomass-burning EGU is more or less resequestered, the process takes years, decades, or even centuries. Third, these nominal emission reductions happen in forests and farmland; they do not occur at the affected source.

Therefore, because the combustion of biomass at affected sources does not lead to actual, real-time emissions reductions at the affected sources, it cannot be a standard of performance, which is defined as the best system of *emission reduction*. EPA should make explicit in the final ESPS that co-firing biomass at affected sources is not available for compliance with the emission reduction targets established under the ESPS. If EPA allows the use of biomass co-firing as a compliance measure despite the scientific and legal objections raised here, the Agency must carefully ensure that affected sources use biomass feedstocks that will produce net emissions reductions in the near term.

Recommendations for Application of the BAF to the ESPS

If EPA continues to move forward in its effort to build a scientifically- and legally-valid framework for assessing biogenic CO_2 emissions from EGUs, the Agency should develop biogenic accounting factors (BAFs) that:

- Rely on an anticipated future baseline to model changes in stored carbon. Regulators must compare emissions from increased biomass harvesting added to a "business as usual" baseline against a scenario absent increased biomass demand for bioenergy. This approach will help ensure biomass carbon accounting results reflect what the atmosphere "sees" in terms of emissions from increased biomass harvesting.
- Utilize compact timeframes when analyzing the net emissions associated with the use of biomass. A timeframe of 10-20 years would analyze the net emissions impact of biomass during a period in which we must avoid locking in long-lived emissions, as we try not to exceed the nation's total allowable emissions consistent with a 2° C threshold, while demand reduction and other mitigation measures have time to take hold more fully. It would also align biogenic emissions accounting under the ESPS with other regulatory efforts designed to avoid the worst consequences of climate change; it would reduce modeling uncertainty, which can increase dramatically over longer time horizons; and it would model BAFs on approximately the same timeframe as industry planning horizons for long term-contracts and operations.
- Calculate biogenic emissions and reductions consistently, regardless of the spatial scale or region in which they occur. BAFs should be modeled in a way that is independent of the physical fuelshed area. Instead, data to inform BAFs—on fuel type, size class for woody biomass feedstocks, land use history, current harvest regime and alternate biomass uses in existing wood products markets—should be collected at the

[24] And sequesters more carbon than would have been sequestered otherwise. *See, e.g.*, *See* Timothy Searchinger, *Biofuels and the Need for Additional Carbon*, ENVIRON. RES. LETT. 5 (2010) 024007.

appropriate scale for each class of data. This is necessary also so that biogenic emissions modeling can accommodate facility-specific analyses, as required by another function that the Framework was designed to address, the need to model carbon emissions under New Source Review and the Prevention of Significant Deterioration permitting programs.

- Address leakage by incorporating the following counterbalancing assumptions into the BAF analysis: First, that new biomass harvest displaces demand associated with other industries on a full one-to-one basis to a new, similar forest stand. And second, that leakage is additive and "new" standing trees are cut in forests that are biologically and climatically identical to the original wood source to meet the original non-biomass needs.
- Categorize biomass feedstocks according to key physical and methodological characteristics. This process includes differentiating between different fuel types (*e.g.*, boles versus branches/limbs), different size classes (*e.g.*, large diameter versus small diameter), different land use histories (*e.g.*, planted versus naturally regenerating); different harvest regimes (*e.g.*, complete removal versus partial cuts); and different alternative fates (*e.g.*, short-term uses versus long-term structural objects for merchantable wood and *in situ* burning versus decay for harvest residues).

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